

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (withdrawn): A method for modifying a surface of a container made of a polymeric compound containing carbon, comprising steps of:

implanting ions into said container so as to modify a surface layer of said container into a material that is not permeable by carbon dioxide gas and oxygen or a material that is hard to be permeated by carbon dioxide gas and oxygen.

2. (withdrawn): A method for modifying a surface of a container made of a polymeric compound according to claim 1, further comprising steps of:

generating plasma in an inside of said container;

subsequently applying high-voltage pulses to an electrode disposed inside said container to thereby implant ions into said surface layer of said container.

3. (withdrawn): A method for modifying a surface of a container made of a polymeric compound according to claim 2, wherein said high-voltage pulses applied to said electrode are positive.

4. (withdrawn): A method for modifying a surface of a container made of a polymeric compound according to claim 1, wherein said container made of a polymeric compound is one of a container made of polyethylene terephthalate and a container made of synthetic resin.

5. (currently amended): An apparatus for modifying a surface of a container made of a polymeric compound comprising:

a reception chamber adapted for receiving said container while keeping airtightness;

a vacuum pump for evacuating said reception chamber;

a plasma generating unit for generating plasma in said reception chamber;

an electrode adapted for being inserted into said container received in said reception chamber; and

a high voltage power source for applying high voltage pulses to said electrode;

wherein said apparatus implants ions in the generated plasma into an interior side surface of the container received in said reception chamber and modifies the interior side surface layer of said container ~~received in said reception chamber is modified~~ into a material that is not permeable by carbon dioxide gas and oxygen or a material that is hard to be permeated by carbon dioxide gas and oxygen.

6. (original): An apparatus for modifying a surface of a container made of a polymeric compound according to claim 5, further comprising a magnetic field generating unit for generating a magnetic field in said reception chamber.

7. (original): An apparatus for modifying a surface of a container made of a polymeric compound according to claim 6, further comprising a gas supply source for supplying gas into said reception chamber.

8. (withdrawn): An apparatus for modifying a surface of a container made of a polymeric compound according to claim 6, said plasma generating unit including:

a coil provided in an inner circumferential portion of said reception chamber; and
a high frequency power source for applying a high frequency current to said coil through a matching circuit.

9. (withdrawn): An apparatus for modifying a surface of a container made of a polymeric compound according to claim 6, said plasma generating unit including:

a magnetron for supplying a microwave into said reception chamber through a waveguide.

10. (original): An apparatus for modifying a surface of a container made of a polymeric compound according to claim 6, wherein said high voltage power source also serves as said plasma generating unit.

11. (currently amended): An apparatus for modifying a surface of a container made of a polymeric compound according to claim 6, wherein said magnetic field generating unit includes one of a solenoid coil provided to surround said reception chamber and a plurality of permanent magnets disposed to surround said reception chamber.

12. (original): An apparatus for modifying a surface of a container made of a polymeric compound according to claim 5, wherein said high voltage power source applies positive high voltage pulses to said electrode.

13. (original): An apparatus for modifying a surface of a container made of a polymeric compound according to claim 5, wherein said container made of a polymeric compound is one of a container made of polyethylene terephthalate and a container made of synthetic resin.